

IN THE CLAIMS:

Claims 1, 5, 9, 15, and 18 have been amended herein. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A memory module, comprising:
a memory module carrier substrate;
a plurality of discrete memory devices disposed on the memory module carrier substrate; and
at least one discrete non-volatile storage device disposed on the memory module carrier substrate, the at least one discrete non-volatile storage device configured for storing data indicating a device location of at least one refurbishable failure associated with at least one failing discrete memory device of the plurality of discrete memory devices, devices;
~~wherein the at least one refurbishable failure comprises at least one failed output, and the at least one of the plurality of discrete memory devices is repaired or replaced~~ if a device location of at least one failing discrete memory device has been indicated, the memory module carrier substrate is in a repaired state subsequent to physical removal of the at least one failing discrete memory device at the device location and disposition of at least one replacement discrete memory device at the device location.
2. (Previously Presented) The memory module of claim 1, wherein the at least one discrete non-volatile storage device is one of an EEPROM, an EPROM, a ferro-electronic device and a flash memory chip.
3. (Canceled)

4. (Previously Presented) The memory module of claim 1, wherein at least a portion of the plurality of discrete memory devices are fully functional dice.

5. (Currently Amended) A computer system, comprising:
a processor; and
a memory module, comprising:

a memory module carrier substrate;

a plurality of discrete memory devices disposed on the memory module carrier substrate;

and

at least one discrete non-volatile storage device disposed on the memory module carrier substrate, the at least one discrete non-volatile storage device configured for storing data indicating a device location of at least one refurbishable failure associated with at least one failing discrete memory device of the plurality of discrete memory ~~devices~~, devices;

~~wherein the at least one refurbishable failure comprises at least one failed output, and the at least one of the plurality of discrete memory devices is repaired or replaced if a~~
device location of at least one failing discrete memory device has been indicated, the memory module carrier substrate is in a repaired state subsequent to physical removal of the at least one failing discrete memory device at the device location and disposition of at least one replacement discrete memory device at the device location.

6. (Previously Presented) The computer system of claim 5, wherein the at least one discrete non-volatile storage device is at least one of an EEPROM, an EPROM, a ferro-electronic device and a flash memory chip.

7. (Canceled)

8. (Previously Presented) The computer system of claim 5, wherein at least a portion of the plurality of discrete memory devices are fully functional dice.

9. (Currently Amended) A method of testing a memory module, the method comprising:
testing a memory module including a memory module carrier substrate and a plurality of discrete memory devices disposed on the memory module carrier substrate;
identifying data indicative of a device location of ~~at least one refurbishable failure associated with~~ at least one failing discrete memory device of the plurality of discrete memory devices;
storing the identified data on the memory module, ~~including storing identification of at least one failed output;~~
accessing the stored data and identifying the device location of the at least one ~~of the plurality of discrete memory devices associated with the at least one refurbishable failure;~~ and failing discrete memory device;
physically removing the at least one failing discrete memory device from the device location; and
disposing at least one replacement discrete memory device at the device location of the at least one failing discrete memory device. ~~repairing or replacing discrete memory devices on the memory module carrier substrate identified as having the at least one refurbishable failure.~~

10. (Canceled)

11. (Previously Presented) The method of claim 9, wherein storing the identification of the at least one failed output further comprises storing data in at least one discrete non-volatile storage device on the memory module.

12. (Previously Presented) The method of claim 11, further comprising selecting the at least one discrete non-volatile storage device from at least one of an EEPROM, an EPROM, a ferro-electronic device and a flash memory chip.

13. (Canceled)

14. (Canceled)

15. (Currently Amended) A method of fabricating a memory module, the method comprising:
placing a plurality of discrete memory devices on a memory module carrier substrate;
testing each of a plurality of elements associated with each of the plurality of discrete memory devices on the memory module carrier substrate;
storing data indicative of a device location of at least one failing discrete memory device of the plurality of discrete memory devices; including at least one element which failed a test wherein the at least one element includes data indicative of at least one failed output;
subsequently accessing the stored data indicative of the device location of the at least one failing discrete memory device; ~~including the at least one element which failed the test;~~
and
physically removing the at least one failing discrete memory device from the device location; and
placing at least one replacement discrete memory device at the device location of the at least one failing discrete memory device. identifying the at least one discrete memory device having the at least one failed element and repairing or replacing the at least one identified discrete memory device on the memory module substrate.

16. (Canceled)

17. (Canceled)

18. (Currently Amended) The method of claim 15, further comprising testing the at least one ~~repaired or replaced~~ replacement discrete memory device on the memory module substrate.

19. (Canceled)